

WHAT IS CLAIMED IS:

1. An enteric composition comprising at least one compound of the following empirical formula (I):



wherein X and Z are amino acids;

Y is a unbranched keto acid; and

n_1 and n_2 represent 0 or 1,

wherein said compound is in association with a physiologically stable enteric vehicle.

2. The composition of Claim 1, wherein said X and Y or Y and Z are in the form of a salt.

3. The composition of Claim 1, wherein said X, Y, and Z are in the form of a salt.

4. The enteric composition of Claim 1, wherein said composition is stable at a pH as low as about 1.

5. The enteric composition of Claim 1, comprising at least one compound of the empirical formula (I) wherein:

n_1 and n_2 are independently 0 or 1, and at least one of n_1 and n_2 is 1;

X is a natural amino acid, provided that when $n_2 = 0$ then X represents a basic amino acid selected from the group consisting of ornithine, arginine, lysine, and histidine;

Y is a keto acid of the following formula (II):



wherein R is an alkyl group or a linear alkane acid with about 1 to about 10 carbon atoms; and

Z is a natural amino acid, selected from the group consisting of ornithine, arginine, lysine, histidine, proline and glutamine.

6. The enteric composition of Claim 5, wherein R is selected from the group consisting of: -CH₃, -CH₂-CH₃, -(CH₂)₂-COOH, and -(CH₂)₃-COOH.

7. The enteric composition of Claim 1, wherein said composition comprises at least one compound from the formula (I) wherein:

n₁ = 1, and n₂ = 0 or 1;

X is an amino acid selected from group consisting of ornithine, lysine and arginine;

Y is a keto acid selected from the group consisting of alpha-ketoglutaric acid and alpha-ketobutyric acid; and

when n₂ = 1, Z is a natural amino acid.

8. The enteric composition of Claim 7, wherein the natural amino acid is selected from the group consisting of ornithine, arginine, proline and glutamine.

9. The enteric composition of Claim 1, wherein said composition comprises at least one compound from the formula (I) wherein:

n₁ = 1, and n₂ = 0;

X is ornithine, and Y is alpha-ketoglutaric acid, or

X is ornithine, and Y is alpha-ketobutyric acid, or

X is arginine, and Y is alpha-ketobutyric acid, or

X is lysine, and Y is alpha-ketobutyric acid, or

X is histidine, and Y is alpha-ketobutyric acid.

10. The enteric composition of Claim 1, wherein the composition comprises at least one compound from the formula (I) wherein:

n₁ = 1, and n₂ = 1; and

X is ornithine, Y is alpha-ketoglutaric acid, and Z is ornithine, or

X is arginine, Y is alpha-ketoglutaric acid, and Z is arginine, or

X is ornithine, Y is alpha-ketoglutaric acid, and Z is glutamine, or

X is ornithine, Y is alpha-ketoglutaric acid, and Z is proline.

11. The enteric composition of Claim 1, wherein the compound is diornithine alpha-ketoglutarate.

12. The enteric composition of Claim 1, wherein the physiologically stable enteric vehicle is selected from the group consisting of enteric microgranules, coated enteric microgranules, enteric nanoparticles or nanospheres, enteric microspheres, enteric microcapsules, enteric granules, coated enteric granules, enteric liposomes, coated enteric liposomes, enteric lyocs, coated enteric lyocs, osmotic pumps with an enteric coating, gums, enteric spheroids, enteric spherical particles, coated enteric spheroids, coated enteric spherical particles, coated enteric tablets, and coated enteric capsules.

13. The enteric composition of Claim 1, wherein said composition is in a form selected from the group consisting of enteric tablets, capsules, sachets and granules.

14. The enteric composition of Claim 1, wherein said composition includes a nutritional material.

15. The enteric composition of Claim 14, wherein said nutritional material is a food.

16. The nutritional material of Claim 14, wherein said nutritional material is in a form that is dilutable or dispersible in an aqueous solvent.

17. The enteric composition of Claim 1, wherein said composition is contained within a medicinal drug, wherein said medicinal drug is associated with a pharmaceutically acceptable vehicle.

18. The medicinal drug of claim 17, wherein said medicinal drug is in a form that can be orally or enterally administered.

19. An enteric composition comprising at least one compound of the following empirical formula (III):



wherein:

X and Z are amino acids;

Y is a branched keto acid; and

n_1 and n_2 are 0 or 1;

wherein said compound is in association with a physiologically stable enteric vehicle.

20. The enteric composition of Claim 19, wherein said X and Y or Y and Z are in the form of a salt.

21. The enteric composition of Claim 19, wherein said X, Y, and Z are in the form of a salt.

22. The enteric composition of Claim 19, wherein said composition is stable at a pH as low as about 1.

23. The enteric composition of Claim 19, comprising at least one compound of the empirical formula (III) wherein:

n_1 and n_2 are independently 0 or 1, and at least one of n_1 and n_2 is 1;

X is a natural amino acid, provided that when $n_2 = 0$ then X is a basic amino acid selected from the group consisting of ornithine, arginine, lysine, and histidine; and

Y is a keto acid of the following formula (II):



wherein R is an alkyl group or a branched alkane acid with about 1 to about 10 carbon atoms.

24. The enteric composition of Claim 23, wherein R is selected from the group consisting of $-CH(CH_3)_2$, $-CH(CH_3)-CH_2-CH_3$, and $-CH_2-CH(CH_3)_2$.

25. The enteric composition of Claim 19, comprising a compound of the formula (III), wherein:

X is arginine, and Y is alpha-ketoisocaproic acid, or

X is ornithine, and Y is alpha-ketoisocaproic acid, or
X is ornithine, and Y is alpha-keto-beta-methylvaleric acid, or
X is arginine, and Y is alpha-keto-beta-methylvaleric acid, or
X is arginine, and Y is alpha-keto-isovaleric acid, or
X is ornithine, and Y is alpha-keto-isovaleric acid.

26. The enteric composition of Claim 19, wherein the physiologically stable enteric vehicle is selected from the group consisting of enteric microgranules, coated enteric microgranules, enteric nanoparticles or nanospheres, enteric microspheres, enteric microcapsules, enteric granules, coated enteric granules, enteric liposomes, coated enteric liposomes, enteric lyocs, coated enteric lyocs, osmotic pumps with an enteric coating, gums, enteric spheroids, enteric spherical particles, coated enteric spheroids, coated enteric spherical particles, coated enteric tablets, and coated enteric capsules.

27. The enteric composition of Claim 19, wherein said composition is in a form selected from the group consisting of enteric tablets, capsules, sachets and granules.

28. The enteric composition of Claim 19, wherein said composition includes a nutritional material.

29. The enteric composition of Claim 28, wherein said nutritional material is a food.

30. The nutritional material of Claim 28, wherein said nutritional material is in a form that is dilutable or dispersible in an aqueous solvent.

31. The enteric composition of Claim 19, wherein said composition is contained within a medicinal drug, wherein said medicinal drug is associated with a pharmaceutically acceptable vehicle.

32. The medicinal drug of Claim 31, wherein said medicinal drug is in a form that can be orally or enterally administered.

33. A method of treating a mammal in need of treatment, said method comprising administering a therapeutically effective amount of the enteric composition of Claim 1 to the mammal.

34. The method of Claim 33, wherein said enteric composition comprises diornithine alpha-ketoglutarate.

35. The method of Claim 33, wherein said mammal is a human being.

36. The method of Claim 33, wherein said enteric compound is administered orally.

37. The method of Claim 33, wherein said mammal is suffering from a disease or disorder.

38. The method of Claim 37, wherein said disease or disorder is selected from the group consisting of pathologies of the digestive tract, pathologies of the biliary ducts, pathologies of the bladder, hemorrhaging proctocolitis, Crohn's disease, gastric ulcers, duodenal ulcers, chronic gastritis, colorectal cancer, gastric cancer, gastroenteritis, intestinal flu, radical ileitis, bladder spasms, vesicle paresis, diarrhea, spasms, constipation and megacolon megarectum.

39. The method of Claim 33, wherein said mammal is in a hypercatabolic state.

40. The method of Claim 39, wherein said hypercatabolic state is related to burns, scabs, trauma, cardiac impairment, respiratory incapacity, cancer, AIDS, healing of the intestinal membrane or recent surgery.

41. The method of Claim 33, wherein said mammal is suffering from a condition selected from the group consisting of anorexia, gastroparesis, retarded digestive transit, digestive malabsorption, Alzheimer's disease and kidney failure.

42. The method of Claim 33, wherein said mammal is suffering from malnourishment.

43. The method of Claim 33, wherein said mammal is suffering from a insulin or growth hormone deficiency.

44. The method of Claim 33, wherein said mammal is undergoing healing.

45. The method of Claim 33, wherein the therapeutically effective amount of said enteric composition is between about 25 mg to 10 g in a single dose.

46. The method of Claim 33, wherein the therapeutically effective amount of said enteric compound is between about 100 mg to 5 g in a single or double daily dose.

47. A method of treating a mammal in need of treatment, said method comprising administering a therapeutically effective amount of the enteric composition of Claim 19 to the mammal.

48. The method of Claim 47, wherein said mammal is a human being.

49. The method of Claim 47, wherein said enteric compound is administered orally.

50. The method of Claim 47, wherein said mammal is suffering from a disease or disorder.

51. The method of Claim 50, wherein said disease or disorder is selected from the group consisting of pathologies of the digestive tract, pathologies of the biliary ducts, pathologies of the bladder, hemorrhaging proctocolitis, Crohn's disease, gastric ulcers, duodenal ulcers, chronic gastritis, colorectal cancer, gastric cancer, gastroenteritis, intestinal flu, radical ileitis, bladder spasms, vesicle paresis, diarrhea, spasms, constipation and megacolon megarectum.

52. The method of Claim 47, wherein said mammal is in a hypercatabolic state.

53. The method of Claim 52, wherein said hypercatabolic state is related to burns, scabs, trauma, cardiac impairment, respiratory incapacity, cancer, AIDS, healing of the intestinal membrane or recent surgery.

54. The method of Claim 47, wherein said mammal is suffering from a condition selected from the group consisting of anorexia, gastroparesis, retarded digestive transit, digestive malabsorption, Alzheimer's disease and kidney failure.

55. The method of Claim 47, wherein said mammal is suffering from malnourishment.

56. The method of Claim 47, wherein said mammal is suffering from a insulin or growth hormone deficiency.

57. The method of Claim 47, wherein said mammal is undergoing healing.

58. The method of Claim 47, wherein the therapeutically effective amount of said enteric composition is between about 25 mg to 10 g in a single dose.

59. The method of Claim 47, wherein the therapeutically effective amount of said enteric compound is between 100 mg to 5 g, in a single or double daily dose.